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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/665,040

09/18/2003

Warren Lin

26571-502

4471

7590

07/07/2006

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EXAMINER

BURCH, MELODY M

ART UNIT

PAPER NUMBER

3683

DATE MAILED: 07/07/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/665,040	Applicant(s) LIN, WARREN	
	Examiner Melody M. Burch	Art Unit 3683	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 June 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,4,6-16 and 18-21 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,4,6-12,14-16 and 18-20 is/are rejected.
- 7) ☒ Claim(s) 13 and 21 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 6/4/06 has been entered.

Claim Objections

2. Claims 1, 4, and 6-13 are objected to because of the following informalities: the phrase "said central mounting hub" in lines 3-4 of claim 1 should be reworded since there was no previous recitation of --a central mounting hub--. Appropriate correction is required.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1, 4, 8, 10, and 14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over US patent 6260669 to Daudi in view of US patent 5421438 to Flotow et al.

Re: claims 1, 4, 8, 10, and 14-16. Daudi teaches in figure 2 a brake rotor comprising: a central mounting portion (or portion on which the holes 18 are located) having an annular wall having outer surfaces parallel to a central axis of the central mounting hub, a first annular braking surface and a second annular braking surface shown in figure 1 at 21 and 22, wherein each braking surface includes an inner diameter and an outer diameter, radially extending brake surface reinforcing ribs 38 located between the first and second annular braking surfaces and between inner and outer diameters of the braking surfaces, a bridge 32 in the form of a radially extending wall completely surrounding the central mounting portion between the annular wall of the central mounting portion and the inner diameter of one of the first and second annular braking surfaces, and a plurality of radially extending bridge reinforcing ribs 34 mounted on the bridge extending from the annular wall to the outer portion of the one of the first and second annular braking surfaces between the radially extending brake reinforcing ribs, wherein the central mounting portion, the braking surfaces, the bridge and the brake reinforcing and bridge reinforcing ribs are formed in a single piece and the brake reinforcing and bridge reinforcing ribs extend into a space between the first and second annular braking surfaces.

Daudi fails to specifically show the bridge reinforcing ribs extending to the outer diameter of one of the first and second annular braking surfaces.

Flotow et al. teach in figure 2 the use of vanes or ribs 24 extending to the outer diameter 28 of a surface.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the arrangement of the bridge reinforcing ribs of Daudi to have extending to the outer diameter of the brake surface, in view of the teachings of Flotow et al., in order to carry airflow all the way across the brake surface for improved heat dissipation.

5. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over US patent 6260669 to Daudi in view of US patent 5421438 to Flotow et al. as applied to claim 1 above and further in view of US Patent 6161660 to Suga et al.

Daudi, as modified, describes the invention substantially as set forth above but lacks the limitation of one or more slots in either or both of the braking surfaces.

Suga et al. teach in figure 1 the use of slots 15 in either or both braking surfaces.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the brake surface of Daudi, as modified, to have included one or more slots, as taught by Suga et al., in order to help eliminate brake squeal.

6. Claims 7 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over US patent 6260669 to Daudi in view of US patent 5421438 to Flotow et al. as applied to claim 1 above and further in view of US Patent 3809192 to Stehle.

Daudi, as modified, describes the invention substantially as set forth above but

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lacks the limitation of one or more pair of openings allowing communication between the braking surfaces.

Stehle teaches in figure 8 the use of a pair of openings 4" allowing communication between braking surfaces.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the braking surfaces of Daudi, as modified, to have included one or more pairs of openings, as taught by Stehle, to improve ventilation.

7. Claims 1, 4, 8, 10-12, 14-16, and 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 2869688 to Busch in view of US Patent 6405657 to Polley.

Re: claims 1, 4, 8, 10, and 14-16. Busch teaches in figure 2 a brake rotor comprising: a central mounting portion 36 having an annular wall having outer surfaces parallel to a central axis of the central mounting hub, a first annular braking surface 40, wherein the braking surface includes an inner diameter and an outer diameter, radially extending brake surface reinforcing ribs 41 located along the first annular braking surface and between inner and outer diameters of the braking surface, a bridge on which elements 43 are located in the form of a radially extending wall completely surrounding the central mounting portion between the annular wall of the central mounting portion and the inner diameter of one of the first annular braking surface, and a plurality of radially extending bridge reinforcing ribs 42 mounted on the bridge extending from the annular wall to the outer portion of the one of the first and second

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annular braking surfaces between the radially extending brake reinforcing ribs, wherein the central mounting portion, the braking surfaces, the bridge and the brake reinforcing and bridge reinforcing ribs are formed in a single piece and the brake reinforcing and bridge reinforcing ribs extend into a space along the first annular braking surface.

Busch lacks the teaching of a second annular braking surface.

Polley teaches in the top figure on the front of the patent the use of a rail brake disc having two annular brake surfaces each of which abutting with a respective brake disc.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the brake disc of Busch to have include a second brake surface, as taught by Polley, in order to provide a means of increasing braking capacity.

Re: claims 11-12 and 19-20. See elements 13 and 36 in figure 1 of Busch.

Re: claim 18. See elements 42 in figure 2 of Busch.

Allowable Subject Matter

8. Claims 13 and 21 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

9. Applicant's arguments with respect to claims have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melody M. Burch whose telephone number is 571-272-7114. The examiner can normally be reached on Monday-Friday (6:30 AM-3:00 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James McClellan can be reached on 571-272-6786. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

mmb
July 3, 2006

Melody M. Burch
Melody M. Burch
Primary Examiner
Art Unit 3683

7/3/06